

teristic of COPD in the bronchial tree and pulmonary parenchyma more frequently than do nonsmokers.

9. Respiratory infections are more prevalent and severe among cigarette smokers, particularly heavy smokers, than among nonsmokers.

10. Cigarette smokers appear to develop postoperative pulmonary complications more frequently than nonsmokers.

CHRONIC OBSTRUCTIVE BRONCHOPULMONARY DISEASE REFERENCES

- (1) ABBOTT, O. A., HOPKINS, W. A., VAN FLEIT, W. E., ROBINSON, J. S. A new approach to pulmonary emphysema. *Thorax* 8: 116-132, 1953.
- (2) ALBERT, R. E., LIPPMANN, M., BRISCOE, W. The characteristics of bronchial clearance in humans and the effects of cigarette smoking. *Archives of Environmental Health* 18(5): 738-755, May 1969.
- (3) ALBERT, R. E., SPIEGELMAN, J. R., SHATSKY, S., LIPPMANN, M. The effect of acute exposure to cigarette smoke on bronchial clearance in the miniature donkey. *Archives of Environmental Health* 18(1): 30-41, January 1969.
- (4) ANDERSON, A. E., JR., FURLANETO, J. A., FORAKER, A. G. Bronchopulmonary derangements in nonsmokers. *American Review of Respiratory Diseases* 101(4): 518-527, April 1970.
- (5) ANDERSON, A. E., JR., HERNANDEZ, J. A., ECKERT, P., FORAKER, A. G. Emphysema in lung macrosections correlated with smoking habits. *Science* 144(3621): 1025-1026, May 22, 1964.
- (6) ANDERSON, A. E., JR., HERNANDEZ, J. A., HOLMES, W. L., FORAKER, A. G. Pulmonary emphysema. Prevalence, severity, and anatomical patterns in macrosections, with respect to smoking habits. *Archives of Environmental Health* 12(5): 569-577, May 1966.
- (7) ANDERSON, D. O. Observations on the classification and distribution of pulmonary emphysema in Canada. *Canadian Medical Association Journal* 89: 709-716, October 5, 1963.
- (8) ANDERSON, D. O., FERRIS, B. G., JR., ZICKMANTEL, R. The Chilliwack Respiratory Survey, 1963. Part IV. The effect of tobacco smoking on the prevalence of respiratory disease. *Canadian Medical Association Journal* 92(20): 1066-1076, May 15, 1965.
- (9) ANDERSON, W. H., WILLIAMS, J. B. Effects of cigarette smoke on distribution of pulmonary perfusion. In: *Current Research in Chronic Respiratory Diseases*. Proceedings of the 11th Aspen Emphysema Conference, Aspen, Colo. U.S. Department of Health, Education, and Welfare, Public Health Service Publication No. 1879, 1969. pp. 75-79.
- (10) ANTHONISEN, N. R., BASS, H., ORIOL, A., PLACE, R. E. G., BATES, D. V. Regional lung function in patients with chronic bronchitis. *Clinical Science* 35: 495-511, December 1968.
- (11) ASHFORD, J. R., BROWN, S., DUFFIELD, D. P., SMITH, C. S., FAY, J. W. J. The relation between smoking habits and physique, respiratory symptoms, ventilatory function, and radiological pneumoconiosis amongst coal workers at three Scottish collieries. *British Journal of Preventive and Social Medicine* 15: 106-117, 1961.

- (12) ASHLEY, D. J. B. Environmental factors in the aetiology of lung cancer and bronchitis. *British Journal of Preventive and Social Medicine* 23(4) : 258-262, November 1969.
- (13) ATTINGER, E. O., GOLDSTEIN, M. M., SEGAL, M. S. Effects of smoking upon the mechanics of breathing. I. In normal subjects. *American Review of Tuberculosis and Pulmonary Diseases* 77(1) : 1-16, January 1958.
- (14) AUERBACH, O., HAMMOND, E. C., GARFINKEL, L. Thickening of walls of arterioles and small arteries in relation to age and smoking habits. *New England Journal of Medicine* 278(18) : 980-984, May 2, 1968.
- (15) AUERBACH, O., HAMMOND, E. C., KIRMAN, D., GARFINKEL, L. Emphysema produced in dogs by cigarette smoking. *Journal of the American Medical Association* 199(4) : 241-246, January 23, 1967.
- (16) AUERBACH, O., HAMMOND, E. C., KIRMAN, D., GARFINKEL, L. Emphysema produced in dogs by cigarette smoking. In: Hanna, M. G., Jr., Nettesheim, P., Gilbert, J. R. (Editors). *Inhalation Carcinogenesis. Proceedings of a Biology Division, Oak Ridge National Laboratory Conference, Gatlinburg, Tennessee, October 8-11, 1969. U.S. Atomic Energy Commission Symposium Series 18*, April 1970. pp. 375-387.
- (17) AUERBACH, O., STOUT, A. P., HAMMOND, E. C., GARFINKEL, L. Smoking habits and age in relation to pulmonary changes. Rupture of alveolar septums, fibrosis and thickening of walls of small arteries and arterioles. *New England Journal of Medicine* 269(20) : 1045-1054, November 14, 1963.
- (18) AVIADO, D. M., CARRILLO, L. R. Hormones and pulmonary effects of tobacco. I. Corticosteroids and their antiasthmatic action. *Archives of Environmental Health* 18(6) : 925-933, June 1969.
- (19) AVIADO, D. M., PALECEK, F. Pulmonary effects of tobacco and related substances. I. Pulmonary compliance and resistance in the anesthetized dog. *Archives of Environmental Health* 15(2) : 187-193, August 1967.
- (20) AVIADO, D. M., SADAVONGVIVAD, C., CARRILLO, L. R. Cigarette smoke and pulmonary emphysema. Influence of bronchodilators and biogenic amines in experimental induction in rats. *Archives of Environmental Health* 20(4) : 483-487, April 1970.
- (21) AVIADO, D. M., SAMANEK, M. Bronchopulmonary effects of tobacco and related substances. I. Bronchoconstriction and bronchodilatation: Influence of lung denervation. *Archives of Environmental Health* 11(2) : 141-151, August 1965.
- (22) AVIADO, D. M., SAMANEK, M., FOLLE, L. E. Cardiopulmonary effects of tobacco and related substances. I. The release of histamine during inhalation of cigarette smoke and anoxemia in the heart-lung and intact dog preparation. *Archives of Environmental Health* 12(6) : 705-724, June 1966.
- (23) BAIR, W. J., DILLEY, J. V. Pulmonary clearance of $^{59}\text{FE}_2\text{O}_3$ and $^{51}\text{CR}_2\text{O}_3$ in rats and dogs exposed to cigarette smoke. In: Davies, C. N. (Editor). *Inhaled Particles and Vapors. II. Proceedings of an International Symposium. Cambridge, September 28 to October 1, 1965, Oxford, Pergamon Press, 1967*. pp. 251-271.
- (24) BALCHUM, O. J., FELTON, J. S., JAMISON, J. N., GAINES, R. S., CLARKE, D. R., OWAN, D., THE INDUSTRIAL HEALTH COMMITTEE, THE TUBERCULOSIS AND HEALTH ASSOCIATION OF LOS ANGELES COUNTY. A Survey for chronic respiratory disease in an industrial city. Preliminary results. *American Review of Respiratory Diseases* 86(5) : 675-685, November 1962.

- (25) BALLENGER, J. J. Experimental effect of cigarette smoke on human respiratory cilia. *New England Journal of Medicine* 263(17) : 832-835, October 27, 1960.
- (26) BALLENGER, J. J., DAWSON, F. W., DERUYTER, M. G., HARDING, H. B. Effects of nicotine on ciliary activity *in vitro*. *Annals of Otology, Rhinology and Laryngology* 74(2) : 303-311, June 1965.
- (27) BATES, D. V., GORDON, C. A., PAUL, G. I., PLACE, R. E. G., SNIDAL, D. P., WOOLF, C. R. Chronic bronchitis. Report on the third and fourth stages of the coordinated study of chronic bronchitis in the Department of Veterans Affairs, Canada. *Medical Services Journal, Canada* 22(1) : 1-59, January 1966.
- (28) BATTISTA, S. P., KENSLER, C. J. Use of the nonimmersed *in vitro* chicken tracheal preparation for the study of ciliary transport activity. Cigarette smoke and related components. *Archives of Environmental Health* 20(3) : 318-325, March 1970.
- (29) BATTISTA, S. P., KENSLER, C. J. Mucus production and ciliary transport activity. *In vivo* studies using the chicken. *Archives of Environmental Health* 20(3) : 326-338, March 1970.
- (30) BEST, E. W. R. A Canadian Study of Smoking and Health. Ottawa, Department of National Health and Welfare, 1966. 137 pp.
- (31) BICKERMAN, H. A., BARACH, A. L. The effect of cigarette smoking on ventilatory function in patients with bronchial asthma and obstructive pulmonary emphysema. *Journal of Laboratory and Clinical Medicine* 43(3) : 455-462, March 1954.
- (32) BLAIR, W. H., HENRY, M. C., EHRLICH, R. Chronic toxicity of nitrogen dioxide. II. Effect on histopathology of lung tissue. *Archives of Environmental Health* 18(2) : 186-192, February 1969.
- (33) BOAKE, W. C. A Study of illness in a group of Cleveland families. XVIII. Tobacco smoking and respiratory infections. *New England Journal of Medicine* 259(26) : 1245-1249, December 25, 1958.
- (34) BONNELL, J. A. Emphysema and proteinuria in men casting copper-cadmium alloys. *British Journal of Industrial Medicine* 12: 181-195, July 1955.
- (35) BONNELL, J. A., KAZANTZIS, G., KING, E. A follow-up study of men exposed to cadmium oxide fume. *British Journal of Industrial Medicine* 16: 135-147, 1959.
- (36) BOUCOT, K. R., COOPER, D. A., WEISS, W. Smoking and the health of older men. I. Smoking and chronic cough. *Archives of Environmental Health* 4(1) : 59-72, January 1962.
- (37) BOUHUYS, A., PETERS, J. M. Control of environmental lung disease. *New England Journal of Medicine* 283(11) : 573-582, September 10, 1970.
- (38) BOUHUYS, A., SCHILLING, R. S. F., VAN DE WOESTIJNE, K. P. Cigarette smoking, occupational dust exposure, and ventilatory capacity. *Archives of Environmental Health* 19(6) : 793-797, December 1969.
- (39) BOUHUYS, A., WOLFSON, R. L., HORNER, D. W., BRAIN, J. D., ZUSKIN, E. Byssinosis in cotton textile workers. Respiratory survey of a mill with rapid labor turnover. *Annals of Internal Medicine* 71(2) : 257-269, August 1969.
- (40) BOUSHY, S. F., HELGASON, A. H., BILLIG, D. M., GYORKY, F. G. Clinical physiologic, and morphologic examination of the lung in patients with bronchogenic carcinoma and the relation of the findings to postoperative deaths. *American Review of Respiratory Diseases* 101(5) : 685-695, May 1970.

- (41) BOWER, G. Respiratory symptoms and ventilatory function in 172 adults employed in a bank. *American Review of Respiratory Diseases* 83: 684-689, 1961.
- (42) BRINKMAN, G. L., COATES, E. O., JR. The prevalence of chronic bronchitis in an industrial population. *American Review of Respiratory Diseases* 86: 47-54, 1962.
- (43) BROWN, K. E., CAMPBELL, A. H. Tobacco, alcohol and tuberculosis. *British Journal of Diseases of the Chest* 55(3): 150-158, 1961.
- (44) CARSON, S., GOLDHAMER, R., CARPENTER, R. Responses of ciliated epithelium to irritants. Mucus transport in the respiratory tract. *American Review of Respiratory Diseases* 93 (3, Part 2): 86-92, March 1966.
- (45) CEDERLOF, R., FRIBERG, L., HRUBEC, Z. Cardiovascular and respiratory symptoms in relation to tobacco smoking. *Archives of Environmental Health* 18(6): 934-940, June 1969.
- (46) CEDERLOF, R., FRIBERG, L., JONSSON, E., KAIJ, L. Respiratory symptoms and "angina pectoris" in twins with reference to smoking habits. An epidemiological study with mailed questionnaire. *Archives of Environmental Health* 13(6): 726-737, December 1966.
- (47) CHANG, S. C. Microscopic properties of whole mounts and sections of human bronchial epithelium of smokers and nonsmokers. *Cancer* 10 (6): 1246-1262, November-December 1957.
- (48) CHAPMAN, T. T. The acute effect of cigarette smoking on pulmonary function. *Journal of the Irish Medical Association* 56(333): 72-74, March 1965.
- (49) CHESTER, E. H., GILLESPIE, D. G., KRAUSE, F. D. The prevalence of chronic obstructive pulmonary disease in chlorine gas workers. *American Review of Respiratory Diseases* 99(3): 365-373, March 1969.
- (50) CHEVALIER, R. B., KRUMHOLZ, R. A., ROSS, J. C. Reaction of nonsmokers to carbon monoxide inhalation. Cardiopulmonary responses at rest and during exercise. *Journal of the American Medical Association* 198(10): 1061-1064, December 5, 1966.
- (51) CHIANG, S. T., WANG, B. C. Acute effects of cigarette smoking on pulmonary function. *American Review of Respiratory Diseases* 101(6): 860-868, June 1970.
- (52) CHIVERS, C. P. Respiratory function and disease among workers in alkaline dusts. *British Journal of Industrial Medicine* 16: 51-60, 1959.
- (53) COATES, E. O., JR., BOWER, G. C., REINSTEIN, N. Chronic respiratory disease in postal employees. Epidemiologic survey of a group employed in one building. *Journal of the American Medical Association* 191(3): 161-166, January 18, 1965.
- (54) COHEN, J. Chronic bronchitis and emphysema. Observations on trends and distribution according to death certificate data, Israel 1960 to 1964. *Israel Journal of Medical Sciences* 3(6): 885-889, November-December 1967.
- (55) COLLEGE OF GENERAL PRACTITIONERS. Chronic bronchitis in Great Britain. A national survey carried out by the respiratory diseases study group of the College of General Practitioners. *British Medical Journal* 2: 973-979, October 14, 1961.
- (56) COMROE, J. H., JR., FORSTER, R. E., II, DUBoIS, A. B., BRISCOE, W. A., CARLSEN, E. *The Lung. Clinical Physiology and Pulmonary Function Tests*. Chicago, Year Book Medical Publishers, Inc., 1963. 390 pp.
- (57) COOK, W. A., WEBB, W. R. Surfactant in chronic smokers. *Annals of Thoracic Surgery* 2(3): 327-333, May 1966.

- (58) COOLEY, J. R. T., REID, D. D. Urban and social origins of childhood bronchitis in England and Wales. *British Medical Journal* 2(5703) : 213-217, April 25, 1970.
- (59) DALHAMN, T. The effect of cigarette smoke on ciliary activity in the upper respiratory tract. *A.M.A. Archives of Otolaryngology* 70 : 166-168, 1959.
- (60) DALHAMN, T. Effect of cigarette smoke on ciliary activity. *American Review of Respiratory Diseases* 93(3) : 108-114, March 1966.
- (61) DALHAMN, T., RYLANDER, R. Ciliastatic action of smoke from filter-tipped and non-tipped cigarettes. *Nature* 201(4917) : 401-402, January 25, 1964.
- (62) DALHAMN, T., RYLANDER, R. Ciliastatic action of cigarette smoke. Varying exposure times. *Archives of Otolaryngology* 81(4) : 379-382, April 1965.
- (63) DALHAMN, T., RYLANDER, R. Tar content and ciliotoxicity of cigarette smoke. *Acta Pharmacologica et Toxicologica* 25(3) : 369-372, 1967.
- (64) DALHAMN, T., RYLANDER, R. Ciliotoxicity of cigarette smoke and its volatile components. *American Review of Respiratory Diseases* 98(3) : 509-511, September 1968.
- (65) DALHAMN, T., RYLANDER, R. Ciliotoxicity of cigar and cigarette smoke. *Archives of Environmental Health* 20(2) : 252-253, February 1970.
- (66) DAVIS, T. R. A., BATTISTA, S. P., KENSLER, C. J. Mechanism of respiratory effects during exposure of guinea pigs to irritants. *Archives of Environmental Health* 15(4) : 412-419, October 1967.
- (67) DEANE, M., GOLDSMITH, J. R., TUMA, D. Respiratory conditions in outside workers. Report on outside plant telephone workers in San Francisco and Los Angeles. *Archives of Environmental Health* 10(2) : 323-331, February 1965.
- (68) DENSEN, P. M., JONES, E. W., BASS, H. E., BREUER, J. A survey of respiratory disease among New York City postal and transit workers. 1. Prevalence of symptoms. *Environmental Research* 1 : 262-286, 1967.
- (69) DENSEN, P. M., JONES, E. W., BASS, H. E., BREUER, J., REED, E. A survey of respiratory disease among New York City postal and transit workers. 2. Ventilatory function test results. *Environmental Research* 2(4) : 277-296, July 1969.
- (70) DOLL, R., HILL, A. B. Mortality in relation to smoking: Ten years' observations of British doctors. (Part I) *British Medical Journal* 1(5395) : 1399-1410, May 30, 1964.
- (71) DOLL, R., HILL, A. B. Mortality in relation to smoking: Ten years' observations of British doctors. (Concluded) *British Medical Journal* 1(5396) : 1460-1467, June 6, 1964.
- (72) DOWLING, H. F., JACKSON, G. G., INOUYE, T. Transmission of the experimental common cold in volunteers. II. The effect of certain host factors upon susceptibility. *Journal of Laboratory and Clinical Medicine* 50(4) : 516-525, October 1957.
- (73) EDELMAN, N. H., MITTMAN, C., NORRIS, A. H., COHEN, B. H., SHOCK, N. W. The effects of cigarette smoking upon spirometric performance of community dwelling men. *American Review of Respiratory Diseases* 94(3) : 421-429, September 1966.
- (74) EDWARDS, F., McKEOWN, T., WHITFIELD, A. G. W. Association between smoking and disease in men over sixty. *Lancet* 1: 196-200, January 24, 1959.
- (75) EHRLICH, R., HENRY, M. C., FENTERS, J. Influence of nitrogen dioxide on resistance to respiratory infections. In: Hanna, M. G., Jr., Nette-

sheim, P., Gilbert, J. R. (Editors). Inhalation Carcinogenesis. Proceedings of a Biology Division, Oak Ridge National Laboratory Conference, Gatlinburg, Tennessee, October 8-11, 1969. U.S. Atomic Energy Commission Symposium Series 18, April 1970. pp. 243-257.

- (76) EICH, R. H., GILBERT, R., AUCHINCLOSS, J. H., JR. The acute effects of smoking on the mechanics of respiration in chronic obstructive pulmonary emphysema. *American Review of Tuberculosis* 76: 22-32, 1957.
- (77) ELWOOD, P. C., PEMBERTON, J., MERRETT, J. D., CAREY, G. C. R., MCAULAY, I. R. Byssinosis and other respiratory symptoms in flax workers in Northern Ireland. *British Journal of Industrial Medicine* 22:27-37, 1965.
- (78) ERIKSSON, S. Studies in Alpha₁-antitrypsin Deficiency. *Acta Medica Scandinavica* 177 (Supplementum 432) : 1965. 85 pp.
- (79) FALK, G. A., BRISCOE, W. A. Chronic obstructive pulmonary disease and heterozygous alpha₁-antitrypsin deficiency. *Annals of Internal Medicine* 72(4) : 595-596, April 1970.
- (80) FALK, H. L., TREMER, H. M., KOTIN, P. Effect of cigarette smoke and its constituents on ciliated mucus-secreting epithelium. *Journal of the National Cancer Institute* 23(5) : 999-1012, November 1959.
- (81) FERRIS, B. G., JR., ANDERSON, D. O. The prevalence of chronic respiratory disease in a New Hampshire town. *American Review of Respiratory Diseases* 86(2) : 165-177, August 1962.
- (82) FERRIS, B. G., JR., ANDERSON, D. O., BURGESS, W. A. Prevalence of respiratory disease in a flax mill in the United States. *British Journal of Industrial Medicine* 19: 180-185, 1962.
- (83) FINKLEA, J. F., SANDIFER, S. H., SMITH, D. D. Cigarette smoking and epidemic influenza. *American Journal of Epidemiology* 90(5) : 390-399, November 1969.
- (84) FLETCHER, C. M., HORN, D. Smoking and health. *WHO Chronicle* 24(8) : 345-370, August 1970.
- (85) FLETCHER, C. M., TINKER, C. M. Chronic bronchitis. A further study of simple diagnostic methods in a working population. *British Medical Journal* 1: 1491-1498, May 27, 1961.
- (86) FLICK, A. L., PATON, R. R. Obstructive emphysema in cigarette smokers. *A.M.A. Archives of Internal Medicine* 104: 518-526, 1959.
- (87) FRANKLIN, W., LOWELL, F. C. Unrecognized airway obstruction associated with smoking. A probable forerunner of obstructive pulmonary emphysema. *Annals of Internal Medicine* 54(3) :379-386, March 1961.
- (88) FRASCA, J. M., AUERBACH, O., PARKS, V. R., JAMIESON, J. D. Electron microscopic observations of the bronchial epithelium of dogs. II. Smoking dogs. *Experimental and Molecular Pathology* 9(3) : 380-399. December 1968.
- (89) FREEMAN, G., CRANE, S. C., STEPHENS, R. J., FURIOSI, N. J. Pathogenesis of the nitrogen dioxide-induced lesion in the rat lung: A review and presentation of new observations. *American Review of Respiratory Diseases* 98(3) : 429-443, September 1968.
- (90) FREEMAN, G., HAYDON, G. B. Emphysema after low-level exposure to NO₂. *Archives of Environmental Health* 8(1) : 125-128, January 1964.
- (91) FREEMAN, G., STEPHENS, R. J., CRANE, S. C., FURIOSI, N. J. Lesion of the lung in rats continuously exposed to two parts per million of nitrogen dioxide. *Archives of Environmental Health* 17(2) : 181-192, August 1968.

- (92) FREOUR, P., COUDRAY, P., ROUSSEL, A., SERISE, A. Les bronchites chroniques et l'insuffisance respiratoire dans l'agglomeration de Bordeaux. (Chronic bronchitis and respiratory insufficiency in Bordeaux). Journal de Medecine de Bordeaux 143(2) : 1865-1879, December 1966.
- (93) GANDEVIA, B. A productive cough upon request as an index of chronic bronchitis: The effects of age, sex, smoking habit, and environment upon prevalence in Australian general practice. Medical Journal of Australia 1(1) : 16-20, January 4, 1969.
- (94) GIAMMONA, S. T. Effects of cigarette smoke and plant smoke on pulmonary surfactant. American Review of Respiratory Diseases 96(3) : 539-541, September 1967.
- (95) GOLDSMITH, J. R., HECHTER, H. H., PERKINS, N. M., BORHANI, N. O. Pulmonary function and respiratory findings among longshoremen. American Review of Respiratory Diseases 86(6) : 867-874, December 1962.
- (96) GREEN, G. M., CAROLIN, D. The depressant effect of cigarette smoke on the *in vitro* antibacterial activity of alveolar macrophages. New England Journal of Medicine 276(8) : 421-427, February 23, 1967.
- (97) GREENBERG, M., MILNE, J. F., WATT, A. Survey of workers exposed to dusts containing derivatives of *Bacillus subtilis*. British Medical Journal 2: 629-633, June 13, 1970.
- (98) GUENTER, C. A., WELCH, M. H., RUSSELL, T. R., HYDE, R. M., HAMMARSTEN, J. F. The pattern of lung disease associated with alpha-1 anti-trypsin deficiency. Archives of Internal Medicine 122(3) : 254-257, September 1968.
- (99) GUILLERM, R., SAINDELLE, A., FALOT, P., HEE, J. Action de la fumee de cigarette et de quelquesuns de ses constituants sur les resistances ventilatoires chez le cobaye. (Action of cigarette smoke and some of its constituents on ventilatory resistance in the guinea pig.) Archives Internationales de Pharmacodynamie et de Therapie 167 (1) : 101-114, May 1967.
- (100) GUYATT, A. R., BERRY, G., ALPERS, J. H., BRAMLEY, A. C., FLETCHER, C. M. Relationship of airway conductance and its immediate change on smoking to smoking habits and symptoms of chronic bronchitis. American Review of Respiratory Diseases 101(1) : 44-54, January 1970.
- (101) HAMMARSTEN, J. F., WELCH, M. H., RICHARDSON, R. H., PATTERSON, C. D., GUENTER, C. A. Familial alpha₁-antitrypsin deficiency and pulmonary emphysema. Transactions of the American Clinical and Climatological Association 80(1) : 7-14, 1968.
- (102) HAMMOND, E. C. Evidence on the effects of giving up cigarette smoking. American Journal of Public Health and the Nation's Health 55(5) : 682-691, May 1965.
- (103) HAMMOND, E. C. Smoking in relation to the death rates of 1 million men and women. In: Haenszel, W. (Editor). Epidemiological Approaches to the Study of Cancer and Other Chronic Diseases. Bethesda, U.S. Public Health Service, National Cancer Institute Monograph No. 19, January 1966. pp. 127-204.
- (104) HAMMOND, E. C., AUERBACH, O., KIRMAN, D., GARFINKEL, L. Effects of cigarette smoking on dogs. I. Design of experiment, mortality, and findings in lung parenchyma. Archives of Environmental Health 21(6) : 740-753, December 1970.
- (105) HAMMOND, E. C., HORN, D. Smoking and death rates—report on forty-four months of follow-up of 187,783 men. II. Death rates by cause.

Journal of the American Medical Association 166(11) : 1294-1308, March 15, 1958.

- (106) HAYDON, G. B., DAVIDSON, J. T., LILLINGTON, G. A., WASSERMAN, K. Nitrogen dioxide-induced emphysema in rabbits. American Review of Respiratory Diseases 95(5) : 797-805, May 1967.
- (107) HAYDON, G. B., FREEMAN, G., FURIOSI, N. J. Covert pathogenesis of NO₂ induced emphysema in the rat. Archives of Environmental Health 11(6) : 776-783, December 1965.
- (108) HAYNES, W. F., JR., KRSTULOVIC, V. J., BELL, A. L. L., JR. Smoking habit and incidence of respiratory tract infections in a group of adolescent males. American Review of Respiratory Diseases 93(5) : 730-735, May 1966.
- (109) HENRY, M. C., FINDLAY, J., SPANGLER, J., EHRLICH, R. Chronic toxicity of NO₂ in squirrel monkeys. III. Effect on resistance to bacterial and viral infection. Archives of Environmental Health 20(5) : 566-570, May 1970.
- (110) HEPFER, N. G., HYATT, R. E., FOWLER, W. S. Detection of chronic obstructive lung disease. An evaluation of the medical history and physical examination. Archives of Environmental Health 19(6) : 806-813, December 1969.
- (111) HERNANDEZ, J. A., ANDERSON, A. E., JR., HOLMES, W. L., FORAKER, A. G. Pulmonary parenchymal defects in dogs following prolonged cigarette smoke exposure. American Review of Respiratory Diseases 93(1) : 78-83, January 1966.
- (112) HIGGINS, I. T. T. Respiratory symptoms, bronchitis and ventilatory capacity in random sample of an agricultural population. British Medical Journal 2: 1198-1203, November 23, 1957.
- (113) HIGGINS, I. T. T. Tobacco smoking, respiratory symptoms, and ventilatory capacity. Studies in random samples of the population. British Medical Journal 1: 325-329, February 7, 1959.
- (114) HIGGINS, I. T. T., COCHRANE, J. B. Respiratory symptoms, bronchitis and disability in a random sample of an agricultural community in Dumfriesshire. Tubercle 39: 296-301, 1958.
- (115) HIGGINS, I. T. T., COCHRANE, A. L. Chronic respiratory disease in a random sample of men and women in the Rhondda Fach in 1958. British Journal of Industrial Medicine 18: 93-102, 1961.
- (116) HIGGINS, I. T. T., COCHRANE, A. L., GILSON, J. C., WOOD, C. H. Population studies of chronic respiratory disease. A comparison of miners, foundryworkers, and others in Staveley, Derbyshire. British Journal of Industrial Medicine 16: 255-268, 1959.
- (117) HIGGINS, I. T. T., GILSON, J. C., FERRIS, B. G., JR., WATERS, M. E., CAMPBELL, H., HIGGINS, M. W. Chronic respiratory disease in an industrial town: A nine-year follow-up study. Preliminary report. American Journal of Public Health and the Nation's Health 58(9) : 1667-1676, September 1968.
- (118) HIGGINS, I. T. T., HIGGINS, M. W., LOCKSHIN, M. D., CANALE, N. Chronic respiratory disease in mining communities in Marion County, West Virginia. British Journal of Industrial Medicine 25(3) : 165-175, July 1968.
- (119) HIGGINS, I. T. T., OLDHAM, P. D., COCHRANE, A. L., GILSON, J. C. Respiratory symptoms and pulmonary disability in an industrial town. Survey of a random sample of the population. British Medical Journal 2: 904-909, October 20, 1956.

- (120) HILDING, A. C. On cigarette smoking, bronchial carcinoma and ciliary action. II. Experimental study on the filtering action of cow's lungs, the deposition of tar in the bronchial tree and removal by ciliary action. *New England Journal of Medicine* 254(25) : 1155-1160, June 21, 1956.
- (121) HOLLAND, W. W., ELLIOTT, A. Cigarette smoking, respiratory symptoms and anti-smoking propaganda. An experiment. *Lancet* 1(7532) : 41-43, January 6, 1968.
- (122) HOLLAND, W. W., HALIL, T., BENNETT, A. E., ELLIOTT, A. Indications for measures to be taken in childhood to prevent chronic respiratory disease. *Milbank, Memorial Fund Quarterly* 47 (3, part 2) : 215-227, July 1969.
- (123) HOLLAND, R. H., KOZLOWSKI, E. J., BOOKER, L. The effect of cigarette smoke on the respiratory system of the rabbit. A final report. *Cancer* 16(5) : 612-615, May 1963.
- (124) HOLLAND, W. W., REID, D. D. The urban factor in chronic bronchitis. *Lancet* 1(7383) : 445-448, February 27, 1965.
- (125) HOLMA, B. The acute effect of cigarette smoke on the initial course of lung clearance in rabbits. *Archives of Environmental Health* 18(2) : 171-173, February 1969.
- (126) HUHTI, E. Prevalence of Respiratory Symptoms, Chronic Bronchitis and Pulmonary Emphysema in a Finnish Rural Population. Field survey of age group 40-64 in the Harjavalta area. *Acta Tuberculosea et Pneumologica Scandinavica (Supplementum 61)* : 1965. 111 pp.
- (127) HURST, A. Familial emphysema. *American Review of Respiratory Diseases* 80: 179-180, 1959.
- (128) HYATT, R. E., KISTIN, A. D., MAHAN, T. K. Respiratory disease in Southern West Virginia coal miners. *American Review of Respiratory Diseases* 89(3) : 387-401, March 1964.
- (129) IDE, G., SUNTZEFF, V., COWDRY, E. V. A comparison of the histopathology of tracheal and bronchial epithelium of smokers and nonsmokers. *Cancer* 12(3) : 473-484, May-June, 1959.
- (130) ITO, H., AVIADO, D. M. Pulmonary emphysema and cigarette smoke. Experimental induction and use of bronchodilators in rats. *Archives of Environmental Health* 16(6) : 865-870, June 1968.
- (131) JAMES, R. H. Prior smoking as a determinant of the distribution of pulmonary ventilation. *American Review of Respiratory Diseases* 101(1) : 105-107, January 1970.
- (132) KAHN, H. A. The Dorn study of smoking and mortality among U.S. veterans: Report on 8½ years of observation. In: Haenzel, W. (Editor). *Epidemiological Approaches to the Study of Cancer and Other Chronic Diseases*. Bethesda, U.S. Public Health Service, National Cancer Institute Monograph No. 19, January 1966, pp. 1-125.
- (133) KAMINSKI, E. J., FANCHER, O. E., CALANDRA, J. C. *In vivo* studies of the ciliastatic effects of tobacco smoke. Absorption of ciliastatic components by wet surfaces. *Archives of Environmental Health* 16(2) : 188-193, February 1968.
- (134) KENNEDY, J. R., ELLIOTT, A. M. Cigarette smoke: The effect of residue on mitochondrial structure. *Science* 168(3935) : 1097-1098, May 29, 1970.
- (135) KENSLER, C. J., BATTISTA, S. P. Chemical and physical factors affecting mammalian ciliary activity. *American Review of Respiratory Diseases* 93(3, Part 2) : 93-102, March 1966.

- (136) KLEINERMAN, J. Effects of NO₂ in hamsters: Autoradiographic and electron microscopic aspects. In: Hanna, M. G., Jr., Netteheim, P., Gilbert, J. R. (Editors). Inhalation Carcinogenesis. Proceedings of a Biology Division, Oak Ridge National Laboratory Conference, Gatlinburg, Tennessee, October 8-11, 1969. U.S. Atomic Energy Commission Symposium Series 18, April 1970. pp. 271-281.
- (137) KORDIK, P., BULBRING, E., BURN, J. H. Ciliary movement and acetylcholine. British Journal of Pharmacology and Chemotherapy 7: 67-79, 1952.
- (138) KRAHL, V. E., BULMASH, M. H. Studies on living ciliated epithelium. American Review of Respiratory Diseases 99(5): 711-718, May 1969.
- (139) KRUGER, A. P., SMITH, R. F. Effects of gaseous ions on tracheal ciliary rate. Proceedings of the Society for Experimental Biology and Medicine 98: 412-414, 1958.
- (140) KRUMHOLZ, R. A., CHEVALIER, R. B., ROSS, J. C. Cardiopulmonary function in young smokers. A comparison of pulmonary function measurements and some cardiopulmonary responses to exercise between a group of young smokers and a comparable group of nonsmokers. Annals of Internal Medicine 60(4): 603-610, April 1964.
- (141) KTUMHOLZ, R. A., CHEVALIER, R. B., ROSS, J. C. Changes in cardiopulmonary functions related to abstinence from smoking. Studies in young cigarette smokers at rest and exercise at 3 and 6 weeks of abstinence. Annals of Internal Medicine 62(2): 197-207, February 1965.
- (142) KRUMHOLZ, R. A., CHEVALIER, R. B., ROSS, J. C. A comparison of pulmonary compliance in young smokers and nonsmokers. American Review of Respiratory Diseases 92(1): 102-107, July 1965.
- (143) KUEPPERS, F. Identification of the heterozygous state for the alpha₁-antitrypsin deficiency gene in man. Biochemical Genetics 3(3): 283-288, 1969.
- (144) KUEPPERS, F., FALLAT, R., LARSON, R. K. Obstructive lung disease and alpha₁-antitrypsin deficiency gene heterozygosity. Science 165(3896): 899-901, August 29, 1969.
- (145) LABELLE, C. W., BEVILACQUA, D. M., BRIEGER, H. The influence of cigarette smoke on lung clearance. An experimental approach. Archives of Environmental Health 12(5): 588-596, May 1966.
- (146) LAMBERT, P. M., REID, D. D. Smoking, air pollution, and bronchitis in Britain. Lancet 1(7652): 853-857, April 25, 1970.
- (147) LARSON, R. K., BARMAN, M. L. The familial occurrence of chronic obstructive pulmonary disease. Annals of Internal Medicine 63(6): 1001-1008, December 1965.
- (148) LARSON, R. K., BARMAN, M. L., KUEPPERS, F., FUDENBERG, H. H. Genetic and environmental determinants of chronic obstructive pulmonary disease. Annals of Internal Medicine 72(5): 627-632, May 1970.
- (149) LAURENZI, G. A., GUARNERI, J. J., ENDRIGA, R. B., CAREY, J. P. Clearance of bacteria by the lower respiratory tract. Science 142: 1572-1573, December 20, 1963.
- (150) LEESE, W. L. B. An investigation into bronchitis. Lancet 2: 762-765, October 13, 1956.
- (151) LEFCOE, N. M., WONNACOTT, T. H. The prevalence of chronic respiratory disease in the male physicians of London, Ontario. Canadian Medical Association Journal 102(9): 381-385, February 28, 1970.
- (152) LEUCHTENBERGER, C., LEUCHTENBERGER, R., ZEBRUN, W., SHAFFER, P. A correlated histological, cytological, and cytochemical study of the tracheobronchial tree and lungs of mice exposed to cigarette smoke.

- II. Varying responses of major bronchi to cigarette smoke, absence of bronchogenic carcinoma after prolonged exposure, and disappearance of bronchial lesions after cessation of exposure. *Cancer* 13(4) : 721-732, July-August 1960.
- (153) LEWIS, G. P., LYLE, H., MILLER, S. Association between elevated hepatic water-soluble protein-bound cadmium levels and chronic bronchitis and/or emphysema. *Lancet* 2(7634) : 1330-1333, December 20, 1969.
- (154) LIEBERMAN, J. Heterozygous and homozygous alpha₁-antitrypsin deficiency in patients with pulmonary emphysema. *New England Journal of Medicine* 281(6) : 279-284, August 7, 1969.
- (155) LIEBERMAN, J., MITTMAN, C., SCHNEIDER, A. S. Screening for homozygous and heterozygous alpha₁-antitrypsin deficiency. Protein electrophoresis on cellulose acetate membranes. *Journal of the American Medical Association* 210(11) : 2055-2060, December 15, 1969.
- (156) LIEBESCHUETZ, H. J. Respiratory signs and symptoms in young soldiers and their relationship to smoking. *Journal of the Royal Army Medical Corps* 105 : 76-81, 1959.
- (157) LOWE, C. R. An association between smoking and respiratory tuberculosis. *British Medical Journal* 2 : 1081-1086, November 10, 1956.
- (158) LOWE, C. R. Chronic bronchitis and occupation. Joint meeting No. 1. Section of Occupational Medicine with Section of Epidemiology and Preventive Medicine. *Proceedings of the Royal Society of Medicine* 61(1) : 98-102, January 1968.
- (159) LUNDMAN, T. Smoking in Relation to Coronary Heart Disease and Lung Function in Twins. A Co-twin Study. *Acta Medica Scandinavica* 180 (Supplement 455) : 1966. 75 pp.
- (160) McDERMOTT, M., COLLINS, M. M. Acute effects of smoking on lung airways resistance in normal and bronchitic subjects. *Thorax* 20 : 562-569, 1965.
- (161) MARTT, J. M. Pulmonary diffusing capacity in cigarette smokers. *Annals of Internal Medicine* 56(1) : 39-45, January 1962.
- (162) MASIN, F., MASIN, M. Frequencies of alveolar cells in concentrated sputum specimens related to cytologic classes. *Acta Cytologica* 10(5) : 362-367, September-October 1966.
- (163) MEGAHEDE, G. E., SENNA, G. A., EIASSA, M. H., SALEH, S. Z., EIASSA, H. A. Smoking versus infection as the aetiology of bronchial mucous gland hypertrophy in chronic bronchitis. *Thorax* 22(3) : 271-278, May 1967.
- (164) MENDENHALL, W. L., SHREEVE, K. E. The effect of cigarette smoke on the tracheal cilia. (Abstract) 28th Annual Meeting, April 21-24, 1937, Memphis, Tennessee. *The Scientific Proceedings of the American Society for Pharmacology and Experimental Therapeutics, Inc. Journal of Pharmacology and Experimental Therapeutics* 60 : 111-112, 1937.
- (165) MILLER, D., BONDURANT, S. Effects of cigarette smoke on the surface characteristics of lung extracts. *American Review of Respiratory Diseases* 85(5) : 692-696, May 1962.
- (166) MILLER, J. M., SPROULE, B. J. Acute effects of inhalation of cigarette smoke on mechanical properties of the lungs. *American Review of Respiratory Diseases* 94(5) : 721-726, November 1966.
- (167) MILLS, C. A. Tobacco smoking: Some hints of its biologic hazards. *Ohio State Medical Journal* 46(12) : 1165-1170, December 1950.
- (168) MITCHELL, R. S., WEBB, N. C., FILLEY, G. F. Chronic obstructive bronchopulmonary disease. III. Factors influencing prognosis. *American Review of Respiratory Diseases* 89(6) : 878-896, June 1964.

- (169) MITCHELL, R. S., SILVERS, G. W., DART, G. A., PETTY, T. L., VINCENT, T. N., RYAN, S. F., FILLEY, G. F. Clinical and morphologic correlations in chronic airway obstruction. *American Review of Respiratory Diseases* 97(1) : 54-61, January 1968.
- (170) MORIYAMA, I. M., DAWBER, T. R., KANNEL, W. B. Evaluation of diagnostic information supporting medical certification of deaths from cardiovascular disease. In: Haenszel, W. (Editor). *Epidemiological Approaches to the Study of Cancer and Other Chronic Diseases*. Bethesda, U.S. Public Health Service, National Cancer Institute Monograph No. 19, January 1966. pp. 405-419.
- (171) MORK, T. A Comparative Study of Respiratory Disease in England and Wales and Norway. *Acta Medica Scandinavica* 172 (Supplementum 384), 1962. 100 pp.
- (172) MORTON, A. Postoperative hypoxaemia. *Medical Journal of Australia* 2(7) : 341-342, August 16, 1969.
- (173) MORTON, H. J. V. Tobacco smoking and pulmonary complications after operation. *Lancet* 1: 368-370, March 18, 1944.
- (174) MOTLEY, H. L., KUZMAN, W. J. Cigarette smoke. Its effect on pulmonary function measurements. *California Medicine* 88(3) : 211-220, March 1958.
- (175) MYRVIK, Q. N., EVANS, D. G. Metabolic and immunologic activities of alveolar macrophages. *Archives of Environmental Health* 14(1) : 92-96, January 1967.
- (176) NADEL, J. A., COMROE, J. H., JR. Acute effects of inhalation of cigarette smoke on airway conductance. *Journal of Applied Physiology* 16: 713-716, 1961.
- (177) NANDI, M., JICK, H., SLOANE, D., SHAPIRO, S., LEWIS, G. P. Cadmium content of cigarettes. *Lancet* 2(7634) : 1329-1330, December 20, 1969.
- (178) OSWALD, N. C., MEDVEL, V. C. Chronic bronchitis; the effect of cigarette-smoking. *Lancet* 2: 843-844, October 22, 1955.
- (179) PALECEK, F., AVIADO, D. M. Pulmonary effects of tobacco and related substances. II. Comparative effects of cigarette smoke, nicotine, and histamine on the anesthetized cat. *Archives of Environmental Health* 15(2) : 194-203, August 1967.
- (180) PALECEK, F., OSKOUI, M., AVIADO, D. M. Pulmonary effects of tobacco and related substances. III. Inhibition of synthesis of histamine in various species. *Archives of Environmental Health* 15(2) : 204-213, August 1967.
- (181) PARRELL, J. L., ANDERSON, D. O., KINNIS, C. Cigarette smoking and respiratory infections in a class of student nurses. *New England Journal of Medicine* 274(8) : 979-984, May 5, 1966.
- (182) PETERS, J. M., FERRIS, B. G., JR. Smoking, pulmonary functions and respiratory symptoms in a college-age group. *American Review of Respiratory Diseases* 95(5) : 774-782, May 1967.
- (183) PETERS, J. M., FERRIS, B. G., JR. Smoking and morbidity in a college-age group. *American Review of Respiratory Diseases* 95(5) : 783-789, May 1967.
- (184) PETERSON, D. I., LONERGAN, L. H., HARDINGE, M. G. Smoking and pulmonary function. *Archives of Environmental Health* 16(2) : 215-218, February 1968.
- (185) PHILLIPS, A. M., PHILLIPS, R. W., THOMPSON, J. L. Chronic cough. Analysis of etiologic factors in a survey of 1,274 men. *Annals of Internal Medicine* 45(2) : 216-231, August 1956.

- (186) PIPER, D. W. Respiratory complications in the postoperative period. *Scottish Medical Journal* 3(5) : 193-198, May 1958.
- (187) PRATT, S. A., FINLEY, T. N., SMITH, M. H., LADMAN, A. J. A comparison of alveolar macrophages and pulmonary surfactant(?) obtained from the lungs of human smokers and nonsmokers by endobronchial lavage. *Anatomical Record* 163(4) : 497-508, April 1969.
- (188) RAKIETEN, N., RAKIETEN, M. L., FELDMAN, D., BOYKIN, M. J., JR. Mammalian ciliated respiratory epithelium. Studies with particular reference to effects of menthol, nicotine, and smoke of mentholated and nonmentholated cigarettes. *A.M.A. Archives of Otolaryngology* 56: 494-503, 1942.
- (189) RANKIN, J., GEE, J. B., CHOSY, L. W. The influence of age and smoking on pulmonary diffusing capacity in healthy subjects. *Medicina Thoracalis* 22(3) : 366-374, 1965.
- (190) RANKIN, J. G., HALE, G. S., WILKINSON, P., O'DAY, D. M., SANTAMARIA, J. N., BABARCZY, G. Relationship between smoking and pulmonary disease in alcoholism. *Medical Journal of Australia* 1(14) : 730-733, April 5, 1969.
- (191) READ, J., SELBY, T. Tobacco smoking and ventilatory function of the lungs. *British Medical Journal* 2: 1104-1108, October 28, 1961.
- (192) REVOTSKIE, N., KANNEL, W., GOLDSMITH, J. R., DAWER, T. R. Pulmonary function in a community sample. *American Review of Respiratory Diseases* 86(6) : 907-911, December 1962.
- (193) RIMINGTON, J. Chronic bronchitis, smoking and social class. A study among working people in the towns of Mid and East Cheshire. *British Journal of Diseases of the Chest* 63(4) : 193-205, 1969.
- (194) ROBERTSON, D. G., WARRELL, D. A., NEWTON-HOWES, J. S., FLETCHER, C. M. Bronchial reactivity to cigarette and cigar smoke. *British Medical Journal* 3(5665) : 269-271, August 2, 1969.
- (195) ROQUE, A. L., PICKREN, J. W. Enzymatic changes in fluorescent alveolar macrophages of the lungs of cigarette smokers. *Acta Cytologica* 12 (6) : 420-429, November-December 1968.
- (196) ROSENKRANTZ, H., ESBER, H. J., SPRAGUE, R. Lung hydroxyproline levels in mice exposed to cigarette smoke. *Life Sciences* 8(11, Part 1) : 571-576, June 1, 1969.
- (197) ROSENKRANTZ, H., SPRAGUE, R. Biochemical screen to investigate whole smoke and vapor phase effects in mice. *Archives of Environmental Health* 18(6) : 917-924, June 1969.
- (198) ROSS, J. C., LEY, G. D., KRUMHOLZ, R. A., RAHBARI, H. A technique for evaluation of gas mixing in the lung: Studies in cigarette smokers and nonsmokers. *American Review of Respiratory Diseases* 95(3) : 147-151, March 1967.
- (199) SAMANEK, M., AVIADO, D. M. Bronchopulmonary effects of tobacco and related substances. II. Bronchial arterial injections of nicotine and histamine. *Archives of Environmental Health* 11(2) : 152-159, August 1965.
- (200) SAMANEK, M., AVIADO, D. M. Bronchopulmonary effects of tobacco and related substances. IV. Bronchial vascular and bronchomotor responses; their suggested defense function. *Archives of Environmental Health* 11(2) : 167-176, August 1965.
- (201) SAMANEK, M., AVIADO, D. M. Cardiopulmonary effects of tobacco and related substances. III. Pulmonary vascular effects of cigarette smoke and nicotine. *Archives of Environmental Health* 12(6) : 717-724, June 1966.

- (202) SAMANEK, M., AVIADO, D. M., PESKIN, G. W. Bronchopulmonary effects of tobacco and related substances. III. Axon reflexes elicited from the visceral pleura. *Archives of Environmental Health* 11(2) : 160-166, August 1965.
- (203) SCARPELLI, E. M. *The Surfactant System of the Lung*. Philadelphia, Lea & Febiger, 1968. 269 pp.
- (204) SCHOETTLIN, C. E. The health effect of air pollution on elderly males. *American Review of Respiratory Diseases* 86(6) : 878-897, December 1962.
- (205) SHAH, J. R., WARAWADEKAR, M. S., DESHMUKH, P. A., PHUTANE, P. N. Institutional survey of pulmonary tuberculosis with special reference to smoking habits. *Indian Journal of Medical Sciences* 13(5) : 381-392, May 1959.
- (206) SHORT, J. J., JOHNSON, H. J., LEY, H. A., JR. The effects of tobacco smoking on health. A study of 2,031 medical records. *Journal of Laboratory and Clinical Medicine* 24: 586-589, 1939.
- (207) SIMONSSON, B. Effect of cigarette smoking on the forced expiratory flow rate. *American Review of Respiratory Diseases* 85: 534-539, 1962.
- (208) SLUIS-CREMER, G. K., SICHEL, H. S. Ventilatory functions in males in a Witwatersrand town. Comparison between smokers and nonsmokers. *American Review of Respiratory Diseases* 98(2) : 229-239, August 1968.
- (209) SLUIS-CREMER, G. K., WALTERS, L. G., SICHEL, H. S. Chronic bronchitis in miners and nonminers: An epidemiological survey of a community in the gold-mining area in the Transvaal. *British Journal of Industrial Medicine* 24(1) : 1-12, January 1967.
- (210) SMITH, J. P., SMITH, J. C., MCCALL, A. J. Chronic poisoning from cadmium fume. *Journal of Pathology and Bacteriology* 80: 287-296, 1960.
- (211) SPURGASH, A., EHRLICH, R., PETZOLD, R. Effect of cigarette smoke on resistance to respiratory infection. *Archives of Environmental Health* 16(3) : 385-391, March 1968.
- (212) STANESCU, D. C., TECULESCU, D. B., PACURARU, R., GAVRILESCU, N. Chronic effect of smoking upon pulmonary distribution of ventilation in healthy males. *Respiration* 25(6) : 497-504, 1968.
- (213) STERLING, G. M. Mechanism of bronchoconstriction caused by cigarette smoking. *British Medical Journal* 3: 275-277, July 29, 1967.
- (214) STRIEDER, D. J., MURPHY, R., KAZEMI, H. Mechanism of postural hypoxemia in asymptomatic smokers. *American Review of Respiratory Diseases* 99(5) : 760-766, May 1969.
- (215) TALAMO, R. C., ALLEN, J. D., KAHAN, M. G., AUSTEN, K. F. Hereditary alpha₁-antitrypsin deficiency. *New England Journal of Medicine* 278 (7) : 345-351, February 15, 1968.
- (216) TARKOFF, M. P., KUEPPERS, F., MILLER, W. F. Pulmonary emphysema and alpha₁-antitrypsin deficiency. *American Journal of Medicine* 45 (2) : 220-228, August 1968.
- (217) THURLBECK, W. M., HENDERSON, J. A., FRASER, R. G., BATES, D. V. Chronic obstructive lung disease. A comparison between clinical roentgenologic, functional and morphologic criteria in chronic bronchitis, emphysema, asthma and bronchiectasis. *Medicine* 49(2) : 81-115, March 1970.
- (218) TOKUHATA, G. K., DESSAUER, P., PENDERGRASS, E. P., HAETMAN, T., DIGON, E., MILLER, W. Pneumoconiosis among anthracite coal miners in Pennsylvania. *American Journal of Public Health and the Nation's Health* 60(3) : 441-451, March 1970.

- (219) U.S. PUBLIC HEALTH SERVICE. The Health Consequences of Smoking. 1968 Supplement to the 1967 Public Health Review. Washington, U.S. Department of Health, Education, and Welfare, Public Health Service Publication No. 1696, 1968. 117 pp.
- (220) U.S. PUBLIC HEALTH SERVICE. NATIONAL CENTER FOR HEALTH STATISTICS. Cigarette smoking and health characteristics, United States, July 1964–June 1965. Washington, U.S. Department of Health, Education, and Welfare, Vital and Health Statistics Series 10, No. 34, Public Health Service Publication No. 1000, May 1967. 64 pp.
- (221) U.S. PUBLIC HEALTH SERVICE. NATIONAL CENTER FOR HEALTH STATISTICS. Vital Statistics of the United States—1967. Vol. II—Mortality, Part A. Washington, U.S. Department of Health, Education, and Welfare, Public Health Service Publication, 1969.
- (222) U.S. PUBLIC HEALTH SERVICE. NATIONAL CENTER FOR HEALTH STATISTICS. Vital Statistics Rates in the United States 1940–1960. Washington, U.S. Department of Health, Education and Welfare, Public Health Service Publication No. 1677, 1968. 881 pp.
- (223) U.S. PUBLIC HEALTH SERVICE. Smoking and Health. Report of the Advisory Committee to the Surgeon General of the Public Health Service. Washington, U.S. Department of Health, Education, and Welfare, Public Health Service Publication No. 1103, 1964. 387 pp.
- (224) WEBB, W. R., COOK, W. A., LANIUS, J. W., SHAW, R. R. Cigarette smoke and surfactant. American Review of Respiratory Diseases 95(2): 244–247, February 1967.
- (225) WEIR, J. M., DUNN, J. E., JR. Smoking and mortality: A prospective study. Cancer 25(1): 105–112, January 1970.
- (226) WELCH, M. H., REINECKE, M. E., HAMMARSTEN, J. F., GUENTER, C. A. Antitrypsin deficiency in pulmonary disease: The significance of intermediate levels. Annals of Internal Medicine 71(3): 533–542, September 1969.
- (227) WICKEN, A. J. Environmental and personal factors in lung cancer and bronchitis mortality in Northern Ireland, 1960–62. Tobacco Research Council, Research Paper No. 9, 1966. 84 pp.
- (228) WIGHTMAN, J. A. K. A prospective survey of the incidence of postoperative pulmonary complications. British Journal of Surgery 55(2): 85–91, February 1968.
- (229) WIKLANDER, O., NORLIN, U. Effect of physiotherapy on post-operative pulmonary complications: A clinical and roentgenographic study of 200 cases. Acta Chirurgica Scandinavica 112: 246–254, 1957.
- (230) WILHELMSEN, L. Effects on bronchopulmonary symptoms, ventilation, lung mechanics of abstinence from tobacco smoking. Scandinavian Journal of Respiratory Diseases 48(3/4): 407–414, 1967.
- (231) WILHELMSEN, L., OHRA, I., TIBBLIN, G. Decrease in ventilatory capacity between ages of 50 and 54 in representative sample of Swedish men. British Medical Journal 3(5670): 553–556, September 6, 1969.
- (232) WILSON, R. H., MEADOR, R. S., JAY, B. E., HIGGINS, E. The pulmonary pathologic physiology of persons who smoke cigarettes. New England Journal of Medicine 262(19): 956–961, May 12, 1960.
- (233) WINKELSTEIN, W., KANTOR, S. Respiratory symptoms and air pollution in an urban population of Northeastern United States. Archives of Environmental Health 18(5): 760–777, May 1969.
- (234) WOOLCOCK, A. J., VINCENT, N. J., MACKLEM, P. T. Frequency dependence of compliance as a test for obstruction in the small airways. Journal of Clinical Investigation 48: 1097–1105, 1969.

- (235) WYNDER, E. L., GOODMAN, D. A., HOFFMANN, D. Ciliotoxic components in cigarette smoke. II. Carboxylic acids and aldehydes. *Cancer* 18(4) : 505-509, April 1965.
- (236) WYNDER, E. L., KAISER, H. E., GOODMAN, D. A., HOFFMANN, D. A method for determining ciliastatic components in cigarette smoke. *Cancer* 16 (9) : 1222-1225, September 1963.
- (237) WYNDER, E. L., KAUFMAN, P. L., LESSER, R. L. A short-term follow-up study on ex-cigarette smokers. With special emphasis on persistent cough and weight gain. *American Review of Respiratory Diseases* 96(4) : 645-655, October 1967.
- (238) WYNDER, E. L., LEMON, F. R., MANTEL, N. Epidemiology of persistent cough. *American Review of Respiratory Diseases* 91(5) : 679-700, May 1965.
- (239) YEAGER, H., JR. Alveolar cells: Depressant effect of cigarette smoke on protein synthesis. *Proceedings of the Society for Experimental Biology and Medicine* 131(1) : 247-250, May 1969.
- (240) ZAMEL, N., YOUSSEF, H. H., PRIME, F. J. Airway resistance and peak expiratory flow-rate in smokers and nonsmokers. *Lancet* 1: 1237-1238, June 8, 1963.
- (241) ZWI, S., GOLDMAN, H. I., LEVIN, A. Cigarette smoking and pulmonary function in healthy young adults. *American Review of Respiratory Diseases* 89(1) : 73-81, January 1964.

BRONCHOPULMONARY

APPENDIX TABLES

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms¹—percent prevalence*
 (Numbers in parentheses represent total number of individuals in particular smoking group)
 SM = Smokers. NS = Nonsmokers. EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Short et al., 1939, U.S.A. (206).	2,031 male and female insurance policy holders.	NS 1.6 (496) SM 6.4 (1,298)			NS 10.9 SM 18.0		Chest illnesses as repre- sented by frequent colds.
Oswald and Medvei, 1955, England (178).	3,602 male and 2,242 female clerical workers 40-65 years of age.				<i>Chronic Bronchitis</i> <i>Males</i> NS 15.8 (474) SM 18.4 (1,940) <i>Females</i> NS 12.1 (619) SM 18.8 (579)	Chronic bronchitis defined by habitual cough and sputum production.	
Phillips et al., 1956, U.S.A. (185).	1,274 male factory workers without overt pulmonary disease or heart failure.	NS 2.0 (451) SM 51.0 (823)					
Higgins 1957, England (112).	301 male and 280 female rural dwellers 25-74 years of age.		<i>Cough and sputum</i> <i>Males</i> NS 7.1 (28) SM 53.9 (222) <i>Females</i> NS 4.5 (176) SM 17.2 (93)	<i>Males</i> NS 7.1 SM 19.8 <i>Females</i> NS 21.6 SM 9.7	<i>Males</i> NS 3.6 SM 17.1 <i>Females</i> NS 9.7 SM 15.1	<i>Chronic Bronchitis</i> <i>Males</i> NS 3.6 SM 9.9 <i>Females</i> NS 3.4 SM 8.6	

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms¹—percent prevalence (cont.)*

(Numbers in parentheses represent total number of individuals in particular smoking group)

SM = Smokers.

NS = Nonsmokers.

EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Higgins and Cochran, 1958, England (114).	94 males and 92 females randomly chosen (members of an agricultural community.)		<i>Females</i> <i>Cough and sputum</i> NS (6) SM 24.0 (75) NS 3.1 (64) SM 3.0 (20)	<i>Males</i> NS 33.3 SM 29.3 Females NS 45.3 SM 20.0	<i>Males</i> NS 0.0 SM 16.0 Females NS 10.9 SM 10.0		<i>Chronic bronchitis</i> <i>Males</i> NS 0.0 SM 6.7 <i>Females</i> NS 0.0 SM 5.0
Edwards et al., 1959, England (74).	1,737 male out- patients on lists of general prac- titioners >60 years of age.						<i>Chronic bronchitis</i> NS 16.6 (151) Cigarettes 29.7 (779) 1-9 23.4 (235) 10-19 31.2 (369) >20 33.7 (175) Pipe 18.5 (340)
Flick and Paton, 1959, U.S.A. (86).	222 male patients not suffering from overt cardio- pulmonary disease, 20-90 years of age.	NS 10.0 (51) SM 55.0 (157)	NS 25.0 (49) SM 65.0 (156)		NS 30.0 (47) SM 60.0 (138)		
Higgins et al., 1959, England (116).	776 males in various occupations 25-64 years of age.		<i>Cough and sputum</i> SM 7.1 (85) NS 36.9 (575)	NS 9.4 SM 24.9	NS 7.1 SM 20.2	SM 14.3 NS 3.5	<i>Chronic bronchitis</i>

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms¹—percent prevalence (cont.)*
 (Numbers in parentheses represent total number of individuals in particular smoking group)
 SM = Smokers. NS = Nonsmokers. EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Higgins, 1959, England (113).	393 males in various occupations 55-64 years of age.		<i>Cough and sputum</i>			<i>Chronic bronchitis</i>	Chronic bronchitis defined as persistent sputum and at least 1 chest illness in past 3 years. Tobacco gram equivalents are: 1 cigarette = 1 gram, 1 cigar = 2-5 grams, 1 pipe = 10-25 grams.
Liebeschuetz, 1959, England (156).	147 male soldiers 20-30 years of age.	NS 0.0 (52)	SM 13.0 (83)				
Ashford et al., 1961, England (11).	4,014 male coal workers.				<i>Respiratory symptoms</i>	Respiratory symptoms— “bronchitis and/or asthma”. No dose rela- tionship found.	
					NS 10.3 (677)		
					EX 19.5 (123)	“bronchitis	
					Cigarettes 21.1 (1,504)	and/or	
					Pipe only 35.1 (202)	asthma”. No	
					Cigarettes and pipe 37.1 (90)	dose rela- tionship	
					All SM .. 21.7 (3,214)	found.	

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms¹—percent prevalence (cont.)*
 (Numbers in parentheses represent total number of individuals in particular smoking group)
 SM = Smokers. NS = Nonsmokers. EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Bower, 1961, U.S.A. (41).	95 male and 77 female bank employees 40–70 years of age.	NS 4.1 (49) SM 27.6 (76) Pipe, cigar ... (13)	NS 20.4 SM 34.2 Pipe, cigar 15.4		NS 34.7 SM 38.2 Pipe, cigar 58.9		Chest illness— chest colds during each of last 2 winters.
Fletcher and Tinker, 1961, England (85).	363 male London transport employees 40–50 years of age.	NS (30) 1–14 g./day 15.5 (156) >15 27.3 (116)	NS 8.7 1–14 g./day .. 29.9 >15 36.9	NS 1–14 g./day .. 8.2 >15 8.6	NS 4.3 1–14 g./day 8.2		
Read and Selby, 1961, Australia (191).	170 male and 132 female individuals interviewed in an out- patient clinic (not all patients).		NS 4.4 SM 23.1 EX 21.2 Females NS 4.9 SM 18.6				
Balchum et al., 1962, U.S.A. (24).	1,451 male light industry employees in California.	NS 10.2 (253) SM 23.3 (1,198) <1 pack- year 11.0 (257) 1–9 17.0 (268) 10–19 25.0 (303) 20–29 21.0 (236) 30–39 28.0 (144) 40–49 39.0 (92) 50–59 34.0 (29) >60 50.0 (24)	NS 11.0 SM 30.4 <1 pack- year 12.0 1–9 18.0 10–19 32.0 20–29 34.0 30–39 40.0 40–49 37.0 50–59 45.0 >60 62.0	NS 9.8 SM 14.5 <1 pack-year .. 10.0 1–9 12.0 10–19 11.0 20–29 18.0 30–39 21.0 40–49 13.0 50–59 38.0 >60 29.0			

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms*¹—percent prevalence (cont.)
 (Numbers in parentheses represent total number of individuals in particular smoking group)
 SM = Smokers. NS = Nonsmokers. EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Boucot et al., 1962, U.S.A. (86).	6,137 males enrolling in pulmonary neoplasm project.	NS 13.0 (806) SM 31.5 (5,381)					
Ferris et al., 1962, U.S.A. (82).	90 male and 71 female flax mill-workers.						<i>Chronic Nonspecific Respiratory Disease</i> <i>Males Females</i>
							NS . 15.0 (20) 10.0 (60) EX . 12.5 (16) .. 1-20 27.3 (22) .. >20 53.1 (32) 50.0 (4)
Ferris and Anderson, 1962, U.S.A. (81).	542 male and 625 female residents of New Hampshire town chosen by random sampling of census.						<i>Chronic bronchitis</i> Age-specific rates. <i>Males</i> NS 13.8 (125) EX 11.9 (77) Cigarettes 40.3 (340) 1-10 29.8 11-20 34.2 21-30 42.3 31-40 61.1 >41 75.3 <i>Females</i> NS 9.4 (878) EX 10.8 (37) Cigarettes 19.8 (208) 1-10 18.1 11-20 22.2 21-30 31-40 27.3 >41

TABLE A2.—*Smoking and chronic obstructive pulmonary disease symptoms¹—percent prevalence (cont.)*

(Numbers in parentheses represent total number of individuals in particular smoking group)

SM = Smokers.

NS = Nonsmokers.

EX = Ex-smokers.

Author, year, country, reference	Number and type of population	Cough	Sputum production	Breathlessness or dyspnea	Chest illnesses	Other	Comments
Goldsmith et al., 1962, U.S.A. (95).	3,381 active or retired longshoremen.						<i>Respiratory conditions</i>
							NS 31.4 (744)
							Moderate/heavy smokers 43.0 (1,238)
Coates et al., 1965, U.S.A. (53).	1,342 male and 242 female Detroit post office employees.	NS 11.2 (747) 1-14 ... 12.7 (266) (not sig.) 15-24 ... 27.5 (402) (p<0.001) >25 ... 36.4 (170) (p<0.001)	NS ... 14.7 1-14 ... 28.2 (p<0.001) 15-24 ... 30.7 (p<0.001) >25 ... 34.1 (p<0.001)				<i>Cough and chronic phlegm</i> Current NS 4.0 data. 1-14 ... 5.3 (not sig.) 15-24 ... 17.2 (p<0.001) >25 ... 25.3 (p<0.001)
Deane et al., 1965, U.S.A. (67).	508 tele- phone company workers.						<i>Persistent cough, phlegm, dyspnea</i> NS 4.5 (200) Current cigarette smokers 15.9 (808)
Huhti, 1965, Finland (126).	653 male and 823 female residents of a Finnish communal region, 40-64 years of age.	<i>Males</i> NS 4.1 (122) EX 8.5 (141) 1-14 31.5 (108) 15-24 40.8 (191) >25 42.4 (85)	<i>Males</i> NS 10.7 EX 17.7 1-14 38.0 15-24 42.9 >25 42.4	<i>Males</i> NS 15.6 EX 24.8 1-14 25.0 15-24 26.2 >25 31.8			<i>Chronic bronchitis</i> <i>Males</i> NS 5.7 EX 16.3 1-14 38.0 15-24 ... 41.4 >25 40.0
		<i>Females</i> NS 4.5 (709) EX 13.3 (30) 1-14 10.4 (77) 15-24 43.0 (6) >25 43.0 (1)	<i>Females</i> NS 5.9 EX 13.3 1-14 10.4 15-24 } 57.0 >25 } 57.0	<i>Females</i> NS 29.2 EX 33.3 1-14 14.3 15-24 } 14.0 >25 } 14.0			<i>Ex-smokers</i> represent those who have stopped smoking for more than 1 month. <i>Dyspnea</i> Grade II only.